

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: YAO, Chung Ting

SERIAL NO.:

FILED: Herewith

TITLE: SELF-CALIBRATABLE OSCILLATING DEVICE AND METHOD AND ASIC THEREOF

Preliminary Amendment: CLAIM AMENDMENTS

1. (Currently amended) A self-calibratable oscillating device, comprising:

a phase comparator including being comprised of a first input port, a second input port and an output port;

a clock pad electrically connected to the first input port;

a crystal oscillator electrically connected to the second input port;

an analog/digital converter electrically connected to the output port of the phase comparator; and

a memory electrically connected to an output end of the analog/digital converter.

2. (Currently amended) The self-calibratable oscillating device of Claim 1, wherein the crystal oscillator is comprised of a temperature-compensated crystal oscillator or a surface acoustic wave crystal oscillator.

3. (Original) The self-calibratable oscillating device of Claim 1, further comprising:

a first switch positioned between the first input port of the phase comparator and the clock pad;

a second switch positioned between the crystal oscillator and the clock pad, wherein the stream direction of the second switch is in reverse of that of the first switch; and

a logic control device for controlling the first switch and the second switch.

4. (Original) The self-calibratable oscillating device of Claim 3, further comprising:

a power pad; and

a high voltage detector electrically connected to the power pad and the logic control device.

5. (Original) The self-calibratable oscillating device of Claim 3, further comprising an embedded clock generator to provide an operation clock for the logic control device.

6. (Currently amended) The self-calibratable oscillating device of Claim 5, wherein the embedded clock generator is comprised of a resistance-capacitor oscillator.

7. (Original) An ASIC for a crystal oscillator, comprising:

a system bus;

an embedded CPU electrically connected to the system bus;

a system memory electrically connected to the system bus;

a clock pad for receiving a reference clock;

a phase comparator for generating a phase difference signal between the reference clock and the clock of an oscillating device of the crystal oscillator; and
an analog/digital converter for converting the phase difference signal into a digital signal.

8. (Original) The ASIC for a crystal oscillator of Claim 7, further comprising:

a first switch positioned between the phase comparator and the clock pad; and
a second switch positioned between the oscillating device and the clock pad.

9. (Original) The ASIC for a crystal oscillator of Claim 8, further comprising a register electrically connected to the system bus for storing data of the system memory when the second switch is turn on.

10. (Original) A method for calibrating oscillating devices, comprising the steps of:

connecting a plurality of oscillating devices in parallel;
inputting an activation signal and a reference clock from a testing machine to the oscillating devices;
comparing the reference clock with the clock of an internal crystal oscillator inside each oscillating device to generate a phase difference signal; and
writing the phase difference signal into an internal memory in each oscillating device.

11. (Original) The method for calibrating oscillating devices of Claim 10, wherein the activation signal keeps a voltage higher than a threshold voltage.

12. (Original) The method for calibrating oscillating devices of Claim 10, further comprising a step of checking if an environmental temperature is equal to a final calibrating temperature.

13. (Original) The method for calibrating oscillating devices of Claim 10, further comprising a step of converting the phase difference signal into a digital signal.